

Tuesday, May 24, 2016 9:54:21 AM

1 46805

Page 1

N900040100

Setup Start *NS1*

Stop *NS2*

1

Cust Item ID:

Start Date: 5/17/2016 **Start Qty:** 1.00

1

Customer:

Required Date: 5/26/2016 **Req'd Qty:** 1.00

Reference:

Approvals: _____ **Process Plan:** W **Date:** _____ **Tooling:** _____ **Date:** _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
D3676	Rev D								DAS 07 9-89
100	HAND FINISHING THERMOFORMING	0.00							
* 100*	Memo	0.35				_____ _____			
Thermoform Machine	Set up Machine as per folio FTA 018 and D3676 program								<i>12/06/21</i>
110	HAND FINISHING THERMOFORMING	0.00							DAS 07 9-89
* 110*	Memo	0.10				_____ _____			
Thermoforming Machine	Cut Blanks to 38" by 52"								<i>12/06/21</i>

DQA: dat Date: 2016-10-7



QA Closed: RYM Date: SEP 30 2015

WORK ORDER NON-CONFORMANCE / UPDATE

Work Order update only ☐

Work Order: <u>146805</u> Part No. <u>D3676-1</u> NCR No. <u>16-6062</u>		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☒ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table border="0"> <tr> <td>Skid-tube ☐</td> <td>Cross tube ☐</td> <td>Water Jet ☐</td> <td>Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☒</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☒	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																																	
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Date: <u>16/7/12</u>		Step #: <u>120</u>		QTY Effective: <u>0</u>			MRB (QSI042) Approval <u>INSP 12</u> <u>16/7/12</u>																																																																		
Description Work Order Deviation				Disposition				Completed By <u>16/7/12</u>																																																																	
Apex of bubble at 22.0". SAC TO CR-B SAC				Acceptable Bubble is correct height at 20".				Lead hand / Supervisor Approval Verification <u>1607-13</u>																																																																	
								QC / QA Coordinator Approval <u>1607-13</u>																																																																	
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Work Order ID 146805

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146805

Page 2

Item ID: D3676-1

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Bubble Window, LH

Start Date: 5/17/2016 Start Qty: 1.00

1

Cust Item ID:

Required Date: 5/26/2016 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start

NR1

QC:

Date:

SPC (Y/N):

Date:

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp
DAS
07
9-89

120

0.00

120

THERMOFORMING MACHINE

Thermoform

Memo

1.21

Thermoforming Machine

Thermoform as per Dwg. D3676 and Folio FTA 018

Dwg. Rev. DFolio Rev. F1- Visually inspect for proper formation of each part
2-Check depth of bubble12/06/24
PTO →

150

0.00

150

HAND FINISHING THERMOFORMING

Thermoform

Memo

1.56

Thermoforming Machine

1) Trim off excess flange material
2) Buff out any light scratches or blemishes
3) Etch part number and batch number**DAS**
07
9-89

12/07/11

DQA:

Date: 2016-10-7



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed:

Date: SEP 30 2015

Work Order update only ☐

Work Order: 146805		DISPOSITION		AGAINST DEPARTMENT/PROCESS					
Part No. D3676-1		Rework ☐		Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐		
NCR No. 16-6063		Scrap ☒		Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐		
		Use-as-is ☐		Thermoforming ☒	Finishing ☐	Rec/Store/Packaging ☐	Other ☐		
		Suspected Unapproved ☐		Large Fab ☐	Composite ☐	Supplier ☐			
Date: 16-07-13		Step #: 120		QTY Effective: 0				MRB (QSI042) Approval	
Description Work Order Deviation				Disposition				DAS 9 9-89 16-07-13	
Small air bubble in viewing area.				Scrap and Replace 1 part				Completed By Dh. 16/07/13.	
								Lead hand / Supervisor Approval Verification DAS 9 9-89 16-07-13	
								QC / QA Coordinator Approval DAS 9 9-89 16-07-13	
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Set-up ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	☒ Broken/Damage/Defect	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☒	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐								
Misidentified ☐	Past Due ☐	OTHER :							

Work Order ID 146805

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Page 3

Item ID: D3676-1 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Bubble Window, LH
Start Date: 5/17/2016 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 5/26/2016 Req'd Qty: 1.00 ***1*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160 *160* QC Quality Control	QC2- Inspect parts off machine FAI/FAIB Memo	0.00 0.01				<u>x/</u>			OKS 07 9-59 16/07/12
170 *170* QC Quality Control	QC5- Inspect part completeness to step on W/O Memo 1) Visually inspect for clarity, and proper formation.	0.00 0.02				<u>0</u>	<u>16-07-13</u>	<u>PD</u>	
180 *180* Packaging Packaging	Identify as per dwg & Stock Location: _____ Memo PPP 146805	0.00 0.01				<u>1</u>	<u>SMB</u>	<u>16/7/13</u>	

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
240 TO 88-8									
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐		OTHER : _____					

Work Order ID 146805

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146805

Page 4

Item ID: D3676-1 Accept ***N900040100*** Setup Start ***NS1***
Revision ID: Stop ***NS2***
Item Name: Bubble Window, LH
Start Date: 5/17/2016 Start Qty: 1.00 ***1*** Cust Item ID:
Required Date: 5/26/2016 Req'd Qty: 1.00 ***1*** Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190	QC21- Final Inspection - Work Order Release	0.00							
190							DAS		
QC							21		
Quality Control	Memo	0.10					9-89	JUL 14 2016	

SA 7/13/16

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐							
Date :		Step #:		QTY Effective :				MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____			
Description Work Order Deviation				Disposition							

Root Cause				FAULT CATEGORY			
Environment ☐		No Re-verification ☐		Pressure/Forced ☐		Temperature/Cure ☐	
Design ☐		Operator ☐		Bending ☐		Set-up ☐	
Doc/Data ☐		Offset/Setup ☐		Centre Not Concentric ☐		BOM/Route ☐	
Equip/Tooling ☐		Supplier ☐		Cracks ☐		Broken/Damage/Defect ☐	
Handling/Pre ☐		Training ☐		Crimp/Kink/Ripple/Wave ☐		Inspection Incomplete/Unqualified ☐	
Material ☐		Use for Testing ☐		Cuffs ☐		Contamination ☐	
Internal Transport ☐		Poor Information ☐		Crushing ☐		Countersink ☐	
Tribal Knowledge ☐		Rushing ☐		Heat Treat ☐		Cut Too Short ☐	
LOA ☐		Product Improvement ☐		Wave/Twist in Tube ☐		Instructions Incomplete/Unclear ☐	
Substation ☐		Process Improvement ☐		Marks/Chatter ☐		Drill Holes ☐	
Past Expiry Date ☐		Manufacturing Process ☐		OTHER : _____			
Misidentified ☐		Past Due ☐					

Picklist Print

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Work Order ID: 146805

146805

Parent Item: D3676-1

D3676-1

Parent Item Name: Bubble Window, LH

Start Date: 5/17/2016

Required Date: 5/26/2016

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev A New Product 01/24/2008 DL Verified:JLM
IPP Rev B Change Mat. to .236" 08/29/2008 DL IPP Rev C
Added D3676-2 12/03/01 DL IPP Rev. D Udate dwg
add 20" dim to apex. 13/012/05

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
MACRLICS.236		Purchased		No		110	sf	468.2500	14	24.47552			DAS 07 9-89

MACRI ICS 236

Plexiglass G 0.236"

16/06/22

Location	Loc Qty	Loc Code
therm	468.2500333	
M132743	22.0000333	
M134281	16	
M134582	64	
M134641	160	
M134733	206.25	

24.5 sg 4

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																																			
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3AO 50 05-0																																																																					
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ART AEROSPACE LTD		Work Order:	146865
Description: Full Height Bubble Window, LH		Part Number:	D3676-1
Inspection Dwg: D3676	Rev: D	Page 1 of 1	

FIRST ARTICLE INSPECTION CHECKLIST
THERMOFORMING SECTION

Description	Accept	Reject	Method of Inspection	Comments
Inside Radii less than N/A "				
Shape Definition	✓			
Texture Retention	✓			
Material imperfections such as bumps, cracks, voids, scratching	✓			

Measured by:	DAS 07 9-89	Date:	12/06/21
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TRIMMING SECTION

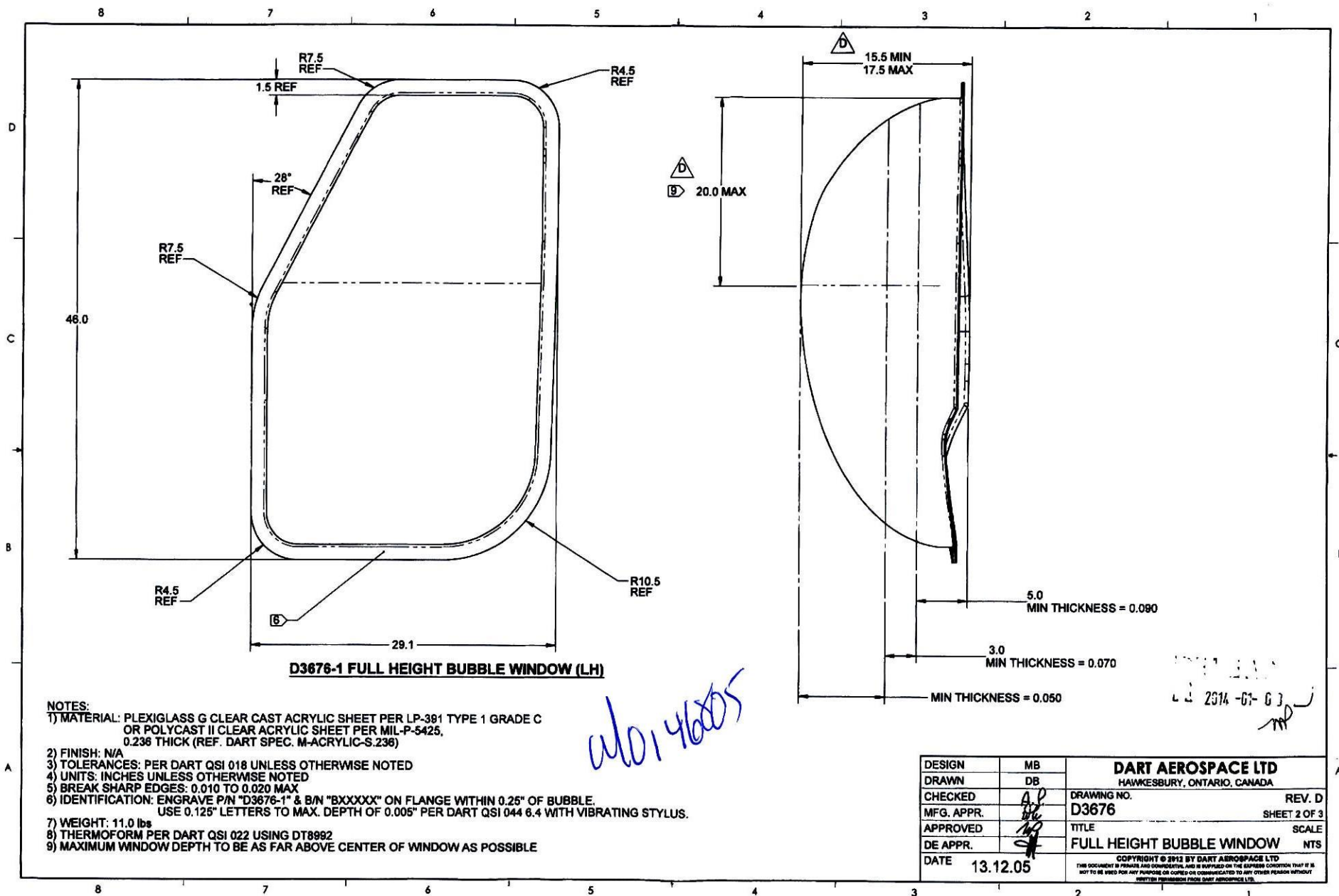
Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
0.090	Min	0.124"	✓			
0.070	Min	0.115"	✓			
0.050	Min	0.073"	✓			
15.5 - 17.5	Min - Max	16.7"	✓			
29.1	+/-0.100	29.15"	✓			
46.0	+/-0.100	46.1"	✓			
20.0	Min	22.0"	✓			OK see PTO Page 9

Measured by:	DAS 07 9-89	Date:	16/07/12
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Audited by:		Date:	
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Preliminary Approval:		Date:	
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Rev	Date	Change	Revised by	Approved
A	16.01.20	New Issue	KJ	



DESIGN	MB	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	DB		
CHECKED	AP	DRAWING NO.	REV. D
MFG. APPR.	AP	D3676	SHEET 2 OF 3
APPROVED	AP	TITLE	SCALE
DE APPR.	AP	FULL HEIGHT BUBBLE WINDOW	NTS
DATE	13.12.05	COPYRIGHT © 2013 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE REPRODUCED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	